No. 7481—*San.* 77-13-2, *dated 2nd February* 1914.

The following extract from the note of Major J. H. Delany, M.D., I.M.S., in the supplement to the annual Sanitary Report of the Province of Bihar and Orissa, for the year 1912, regarding fumigation by burning neem leaves as a plague disinfectant is published for general information.

FUMIGATION WITH BURNING NEEM LEAVES AS A PLAGUE DISINFECTANT.

* * * * *

Finding I was frequently asked by Europeans and Indians alike in this district (Saran) for a simple house disinfectant, I began a series of experiments in January 1912, with substances that would be likely to kill off rats in plague infected houses. I sought a substance that could be so applied that it would search out all lurking places of rats and kill them. The method of fumigation suggested itself to me at once. I experimented in my servant's godowns as follows. Rats in traps were suspended from the roof, placed on the ground, under bundles of clothes, etc., in a godown. Thirty to fifty cow-dung cakes or chapaties (easily obtained of course in every village) were arranged in a loose circle in the centre of the cleared floor of a hut and set on fire, with or without the aid of a little kerosine oil. The various substances to be experimented with were piled on the burning cow-dung chapaties when well alight, the doors and windows were shut, and the fire was allowed to burn itself out. In this way, rats were subjected to the fumes of innumerable burning substances in turn, but although a number of experiments were performed, the rats (though occasionally showing signs of distress) survived as a general rule.

In the course of examining some rats after the experiments, I noticed some dead fleas on some that had been fumigated with neem leaves. I repeated the experiments with neem leaves, but surrounded the rat-traps, except on top, with muslin. I then found that in practically every case the rats were found to be free from fleas, but the muslin under the traps contained a number of dead fleas. Some further experiments shewed that the longer the rats were exposed to the neem fumes the greater the number of dead fleas that were found. The best results were obtained by an exposure of over two hours, and up to three hours.

I now experimented with a large number of other substances, but failed to discover any better pulicide, than the fumes of fresh neem leaves.

* * * * *

* * * * *

Believing then that this is the best method ot breaking the chain of inspection from rat to man, I had instructions printed in pamphlet form, and had them distributed in thousands all over the district, by the Plague Staff last plague season.

* * * * *

* * * * *

It is not necessary to dry the neem leaves; they can be used, and in fact are most effective when taken direct from the tree, and burnt. They give off a dense penetrating smoke.

I believe there are great possibilities in this simple and inexpensive method of disinfection for plague, which I consider to be the most practicable that is available at present.

By Order,
K. R. SRINIVASIENGAR,
Secretary to Government,
General and Revenue Departments.